



**C-DOT IVRS**

**INSTALLATION MANUAL**



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DRAFT 03

MAY 2003

JYESTHA 2060

SERIES 300 : INSTALLATION

CSP SECTION NO. 410-305-0760

THIS C-DOT SYSTEM PRACTICE REFERS TO THE C-DOT INTERACTIVE VOICE RESPONSE SYSTEM (ABBREVIATED AS C-DOT IVRS IN THE REST OF THIS PUBLICATION).

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THE INFORMATION IN THIS SYSTEM PRACTICE IS FOR INFORMATION PURPOSES AND IS SUBJECT TO CHANGE WITHOUT NOTICE.

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A COMMENT FORM HAS BEEN INCLUDED AT THE END OF THIS PUBLICATION FOR READER'S COMMENTS. IF THE FORM HAS BEEN USED, COMMENTS MAY BE ADDRESSED TO THE DIRECTOR (SYSTEMS ), CENTRE FOR DEVELOPMENT OF TELEMATICS, 39, MAIN PUSA ROAD, NEW DELHI - 110 005

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## **Chapter 1.**

# **Introduction**

---

C-DOT Interactive Voice Response System (IVRS) can be easily integrated with the existing telecom network. It can be interfaced with the network through the normal twisted pair copper wire (analog line) or through E1 trunk interface (Digital --> 2Mbps). Junction cards are used for analog interface and E1 trunks (maximum of 2) can be interfaced through Compact Terminal Controller (CTC) card. The system can cater up to 60 channels simultaneously and can be configured to support many applications with flexibility in the number of ports assigned to each application. The system is designed with state of the art Digital Signal Processing (DSP) technology.

## Chapter 2.

# Packaging Details

---

The C-DOT IVRS is available in the following configurations.

1. 30 channel IVRS : Using 4 nos. of junction cards  
or  
1 no. of E1 trunk
2. 60 channel IVRS Using 4 nos. of junction cards  
and  
1 no. of E1 trunk  
or  
Using 2 nos. of E1 trunks

The system has the following cards

1. APC-CTCA01/0-S11
2. APC-ASVA27/H-B00
3. APC-JUN081/T-S03
4. APC-EPU874/F-S02
5. APC-IXCA49/T-S01 (Auxillary card)
6. APC-IVBA47/F-M00 (Backplane)

The quantity of JUN & ASV cards are site dependent. Atleast one each of, ASV, CTC and EPU should exist for E1 interface and additionally JUN card and for analog interface alongwith RS232 cables to bring up the system.

IVRS HARDWARE EUIPAGE

1	2	3	4	5	6	7	8	9	10	11	12	13
E P U		J U N 0	J U N 1	J U N 2	J U N 3			A S V 0	A S V 1			C T C

Fig. 2.1

**Note :***One ASV for 30ch is required subject to 2 cards max. Use of JUN depends on the type of I/F provided at site.*

## Chapter 3.

# Cable Preparation & Laying

---

In this chapter, preparation of various cables at site are discussed. Certain cables are prepared in the factory for which the length is known. The details of all types of cables are covered in this chapter.

### 3.1. SUBSCRIBER CABLE (Internal to the System)

C-DOT ASSY. NO.	:	ACB-IVRJCMD0-000
DRAWING NO.	:	Fig. 3.1.1
CABLE PART NO.	:	MCA-ICSBZ010-401
CABLE MARKER NO.	:	AAYY
CABLE DESCRIPTION	:	32 Pair cable (4 x 8 pair twisted cable)
CABLE LENGTH	:	Fixed. Ref. Fig. 3.1.1
SOURCE TERMINATION PART NO.	:	MCC-BPCSZ001-301
DESTINATION TERMINATION PART NO.	:	MCC-MDFPZ027-301
SOURCE PLACEMENT	:	As per Table : 3.1.1
TAB. NO. RETAINED (POLARISATION)	:	MODULE 1 : 1 MODULE 2 : 2
DESTINATION PLACEMENT	:	MDF in system
TAB. NO. RETAINED	:	-
ASSEMBLY PROCEDURE	:	Refer Fig. 3.1.2





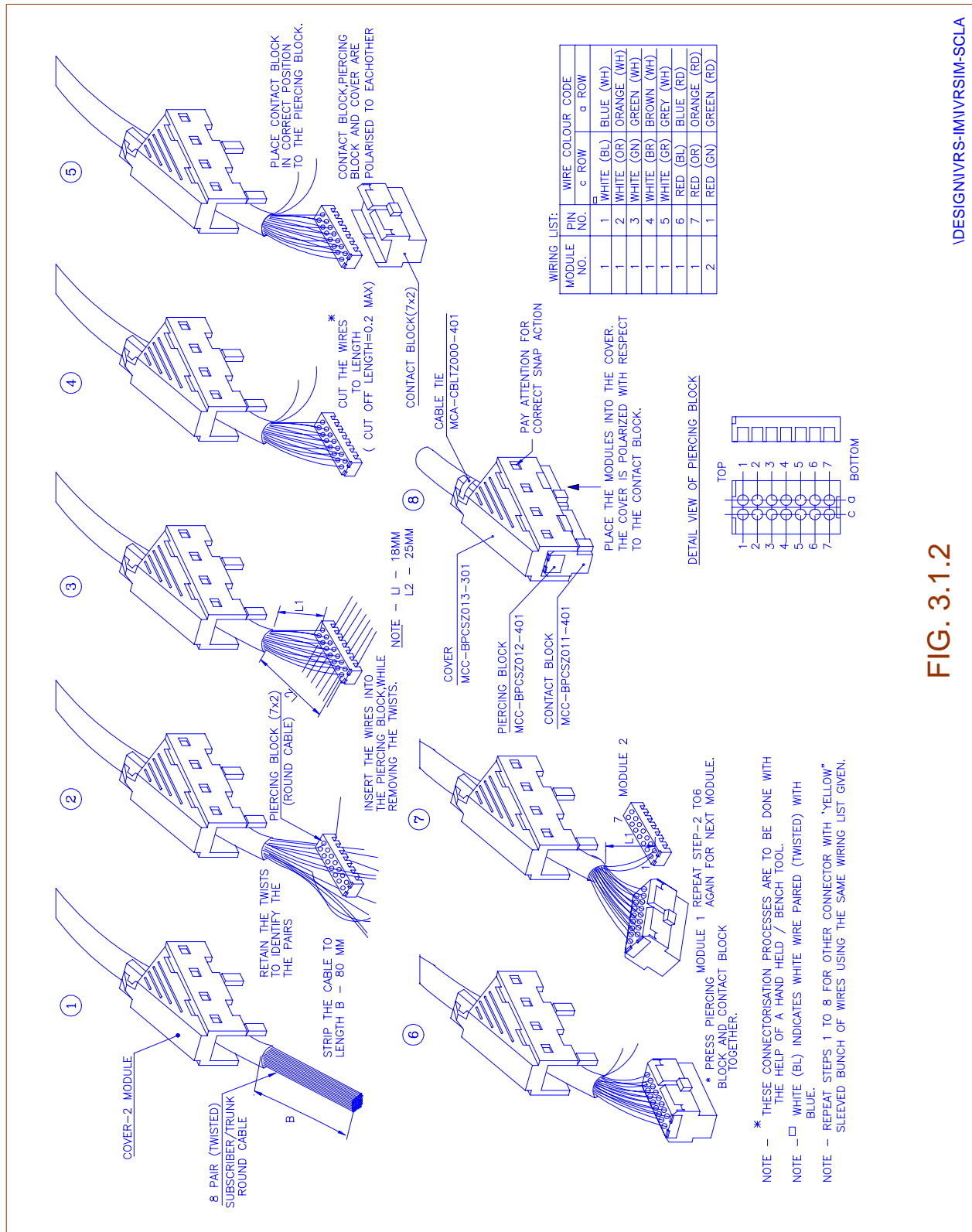


FIG. 3.1.2

**3.2. DIGITAL TRUNK CABLE (Internal to System)**

C-DOT ASSY. NO.	:	ACB-IVRJNMD0-000
DRAWING NO.	:	Fig. 3.2.1
CABLE PART NO.	:	MCA-PVCTPS08-401
CABLE MARKER NO.	:	AAXX
CABLE DESCRIPTION	:	Shielded twisted pair digital cable
CABLE LENGTH	:	Fixed. Ref. Fig. 3.2.1
SOURCE TERMINATION PART NO.	:	MCC-BPCSZ001-301
DESTINATION TERMINATION PART NO.	:	MCC-MDFPZ027-301
SOURCE PLACEMENT	:	As per Table : 3.2.1
TAB. NO. RETAINED	:	TAB NO. 1 FOR MODULE 1 TAB NO. 2 FOR MODULE 2
DESTINATION PLACEMENT	:	MDF
TAB. NO. RETAINED	:	-
ASSEMBLY PROCEDURE	:	Refer Fig. 3.2.1

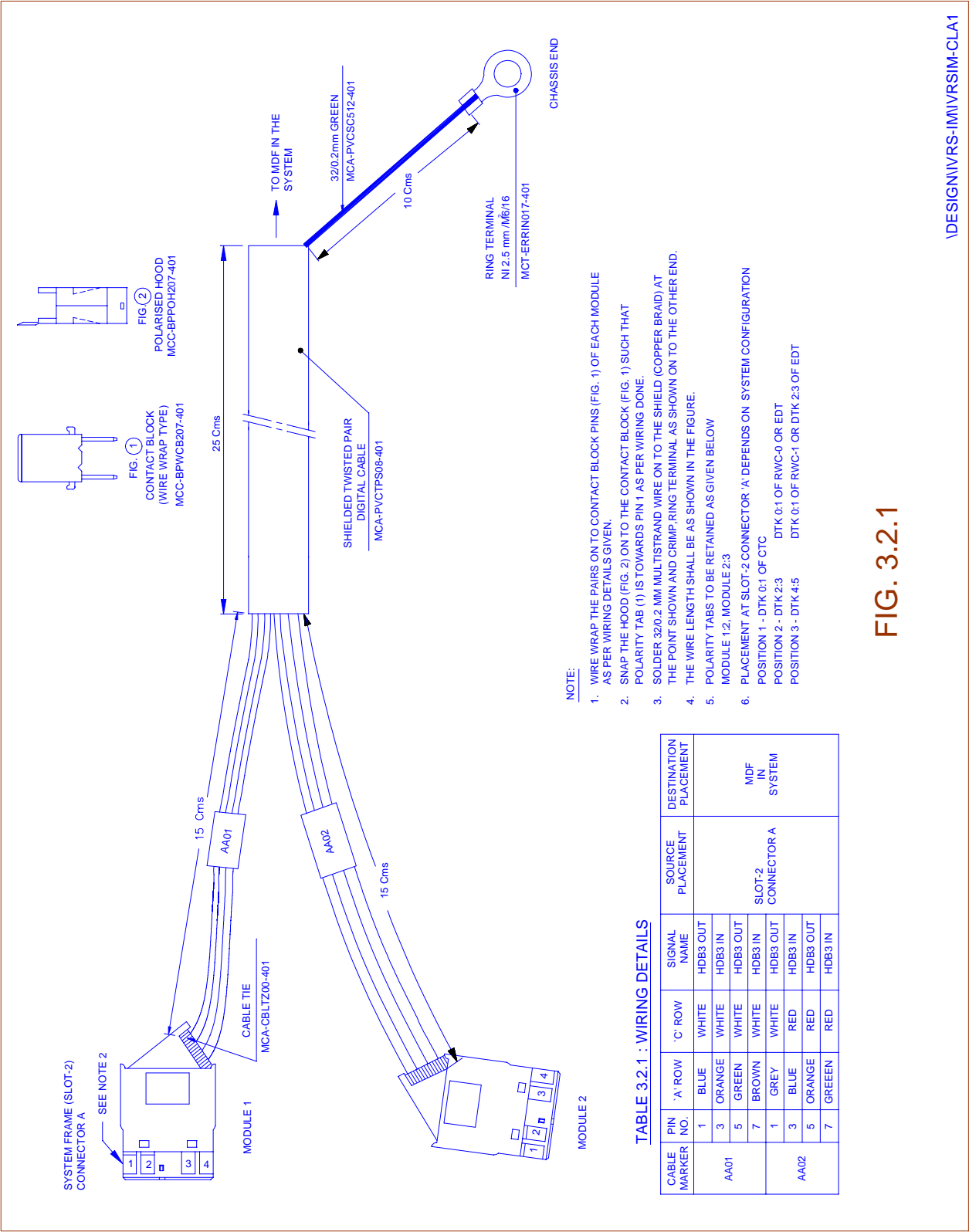
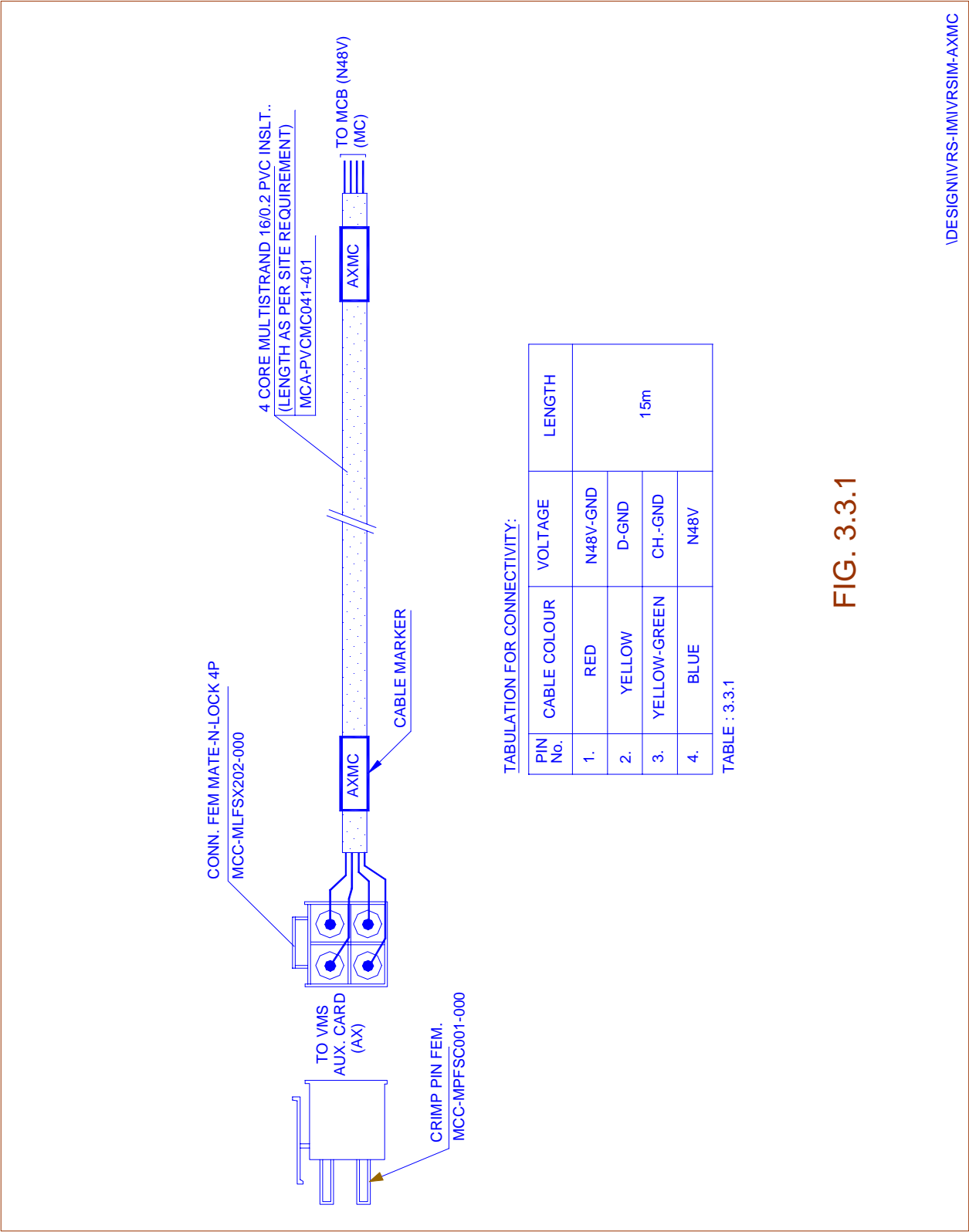


FIG. 3.2.1

\\DESIGN\\IVRS-IM\\IVRSIM-CLA1

**3.3. POWER CABLE**

C-DOT ASSY. NO.	:	ACB-MAXLPPA3-000
DRAWING NO.	:	Fig. 3.3.1
CABLE PART NO.	:	MCA-PVCMC041-401
CABLE MARKER NO.	:	AXMC
CABLE DESCRIPTION	:	4 Core multistrand 16/0.2 PVC insulated
CABLE LENGTH	:	15M
SOURCE TERMINATION PART NO.	:	1. CONN FEM MATE-N-LOCK 4P MCC-MLFSX202-000 2. CRIMP PINS FEM MCC-MPFSC001-000
DESTINATION TERMINATION PART NO.	:	Stripped wire
SOURCE	:	IVRS Auxiliary card APC-IXCA491T-SXX
TAB. NO. RETAINED (POLARISATION)	:	
DESTINATION	:	N48V MCB
TAB. NO. RETAINED	:	
ASSEMBLY PROCEDURE	:	Refer Fig. 3.3.1

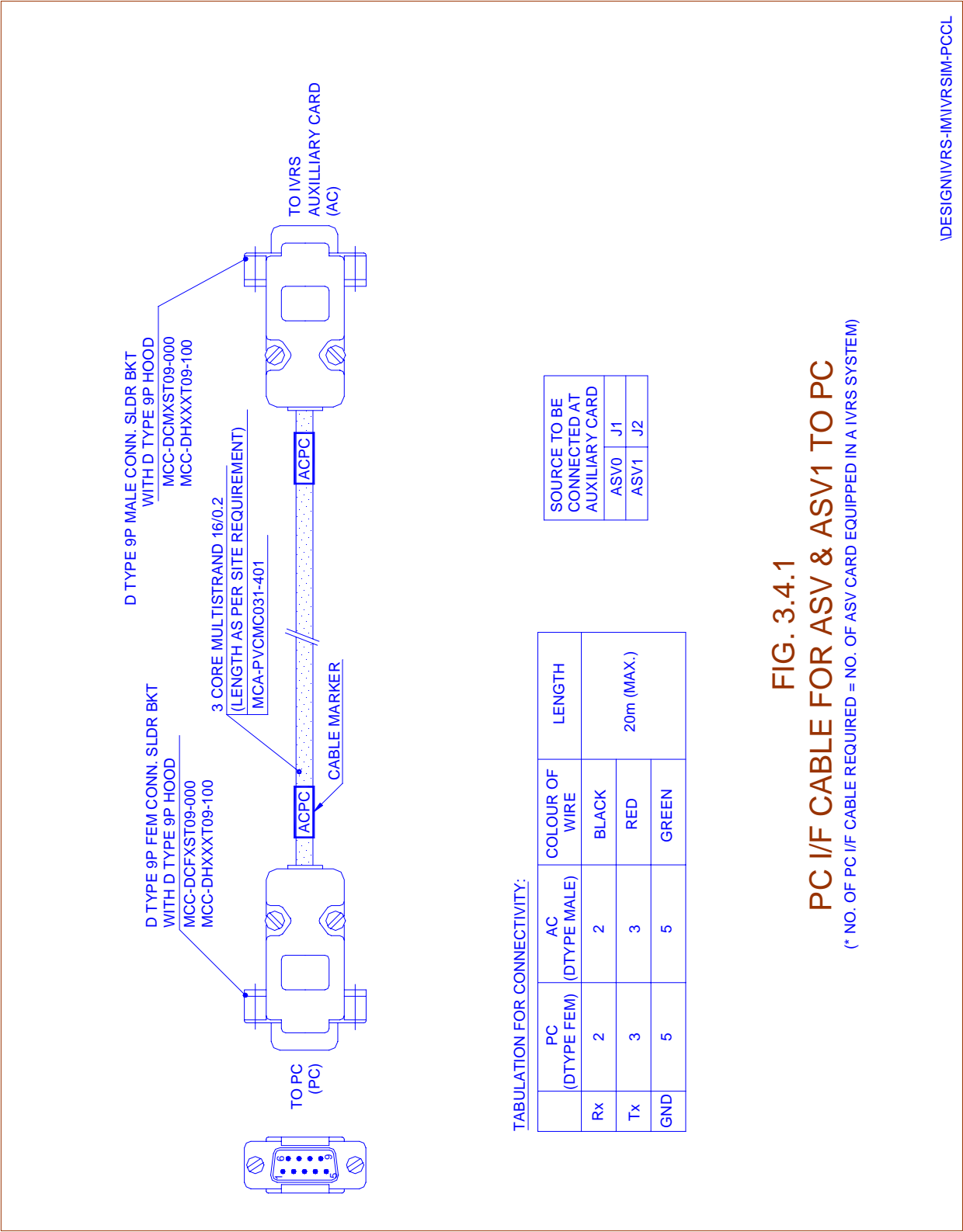


\\DESIGN\\IVRS-IMIVRS\\SIM-AXMC

FIG. 3.3.1

**3.4. PC INTERFACE CABLE ASSEMBLY**

C-DOT ASSY. NO.	:	ACB-IVRACPC0-000
DRAWING NO.	:	Fig. 3.4.1
CABLE PART NO.	:	MCA-PVCMC031-401
CABLE MARKER NO.	:	ACPC
CABLE DESCRIPTION	:	3 Core multistrand 16/0.2
CABLE LENGTH	:	20M (Max)
SOURCE TERMINATION PART NO.	:	<ol style="list-style-type: none"> <li>1. DTYPE 9P FEM CONN SLDR BKT MCC-DCFXST09-000</li> <li>2. DTYPE 9 PIN HOOD MCC-DHXXXT09-100</li> </ol>
DESTINATION TERMINATION PART NO.	:	<ol style="list-style-type: none"> <li>1. DTYPE 9P MALE CONN SLDR BKT MCC-DCMXST09-000</li> <li>2. DTYPE 9 PIN HOOD MCC-DHXXXT09-100</li> </ol>
SOURCE PLACEMENT	:	IVRS Auxiliary Card APC-IXCA49/T-SXX
TAB. NO. RETAINED (POLARISATION)	:	
DESTINATION PLACEMENT	:	PC - RS232C SERIAL PORT
TAB. NO. RETAINED	:	
ASSEMBLY PROCEDURE	:	Refer Fig. 3.4.1



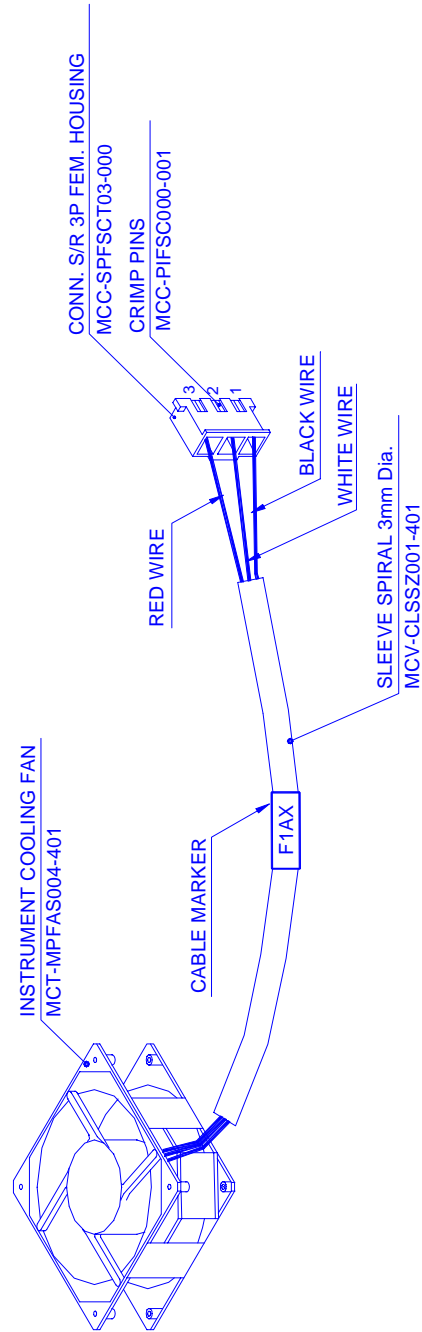
DESIGNIVRS-IMIVRSIM-PCCL



**3.5. FAN CABLE (Internal Cable)**

FAN 1 :

C-DOT ASSY. NO.	:	ACB-IVRSF1AX0-000
DRAWING NO.	:	Fig. 3.5.1
CABLE PART NO.	:	-
CABLE MARKER NO.	:	FIAX
CABLE SPECIFICATION	:	-
CABLE LENGTH	:	60 cms (Sleeve length = 60 cms)
SOURCE TERMINATION PART NO.	:	1. INSTRUMENT COOLING FAN MCT-MPFAS004-401  2. SLEEVE SPIRAL 3 mm DIA MCV-CLSSZ001-401
DESTINATION TERMINATION PART NO.	:	1. CONN S/R 3P FEM HOUSING MCC-SPFSC03-000  2. CRIMP PINS MCC-PIFSC000-001
SOURCE PLACEMENT	:	INSTRUMENT COOLING FAN
TAB. NO. RETAINED (POLARISATION)	:	
DESTINATION PLACEMENT	:	IVRS Auxiliary Card (FAN1-J11) APC-IXCA49/T-SXX
TAB. NO. RETAINED	:	
ASSEMBLY PROCEDURE	:	-



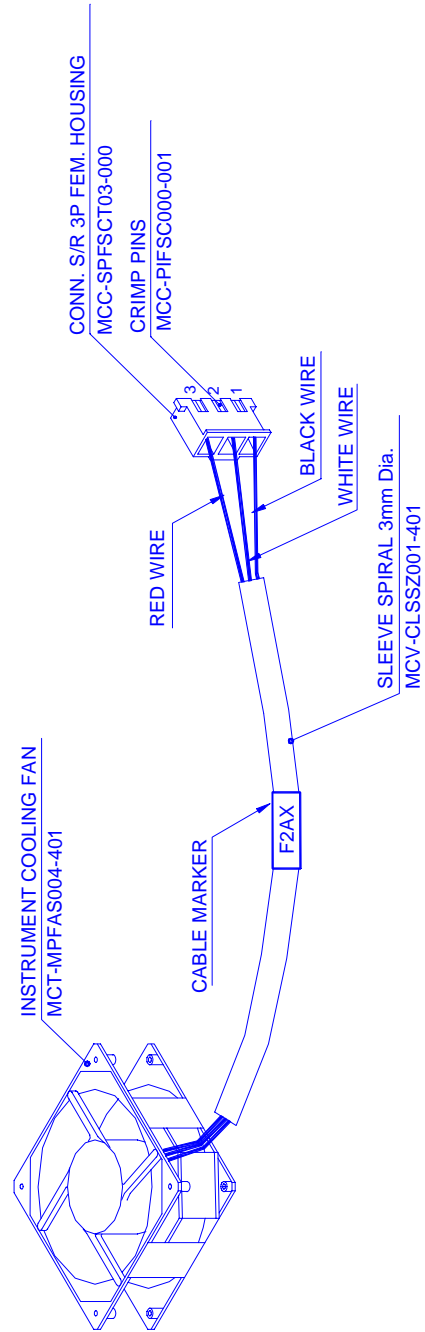
NOTE:  
CABLE LENGTH FOR FAN 1 = 60cms.  
SLEEVE LENGTH AS PER CABLE LENGTH.

**FIG. 3.5.1**  
**COOLING FAN CABLE**

DESIGNIVRS-IMIVRSIM-FCL

## FAN 2 :

C-DOT ASSY. NO.	:	ACB-IVRSF2AX0-000
DRAWING NO.	:	Fig. 3.5.2
CABLE PART NO.	:	-
CABLE MARKER NO.	:	F2AX
CABLE SPECIFICATION	:	-
CABLE LENGTH	:	75 cms (Sleeve length = 75 cms)
SOURCE TERMINATION PART NO.	:	<ol style="list-style-type: none"> <li>1. INSTRUMENT COOLING FAN MCT-MPFAS004-401</li> <li>2. SLEEVE SPIRAL 3 mm DIA MCV-CLSSZ001-401</li> </ol>
DESTINATION TERMINATION PART NO.	:	<ol style="list-style-type: none"> <li>1. CONN S/R 3P FEM HOUSING MCC-SPFSCT03-000</li> <li>2. CRIMP PINS MCC-PIFSC000-001</li> </ol>
SOURCE PLACEMENT	:	INSTRUMENT COOLING FAN
TAB. NO. RETAINED (POLARISATION)	:	
DESTINATION PLACEMENT	:	IVRS Auxiliary Card (FAN2-J10) APC-IXCA49/T-SXX
TAB. NO. RETAINED	:	
ASSEMBLY PROCEDURE	:	-



NOTE:  
CABLE LENGTH FOR FAN 2 = 75cms.  
SLEEVE LENGTH AS PER CABLE LENGTH.

**FIG. 3.5.2**  
**COOLING FAN CABLE**

\\DESIGN\\IVRS-IMIVRS\\SIM-ECC1

### **3.6. INTERNAL CABLE ROUTING**

- i) Fan cable routing  
Refer Fig. 3.6.1
- ii) MDF cable routing  
Ref. Fig. 3.6.2
- iii) Backmount wiring details for subscriber and trunk cables  
Ref. Fig. 3.6.3
- iv) External cable routing  
Ref. Fig. 3.6.4.

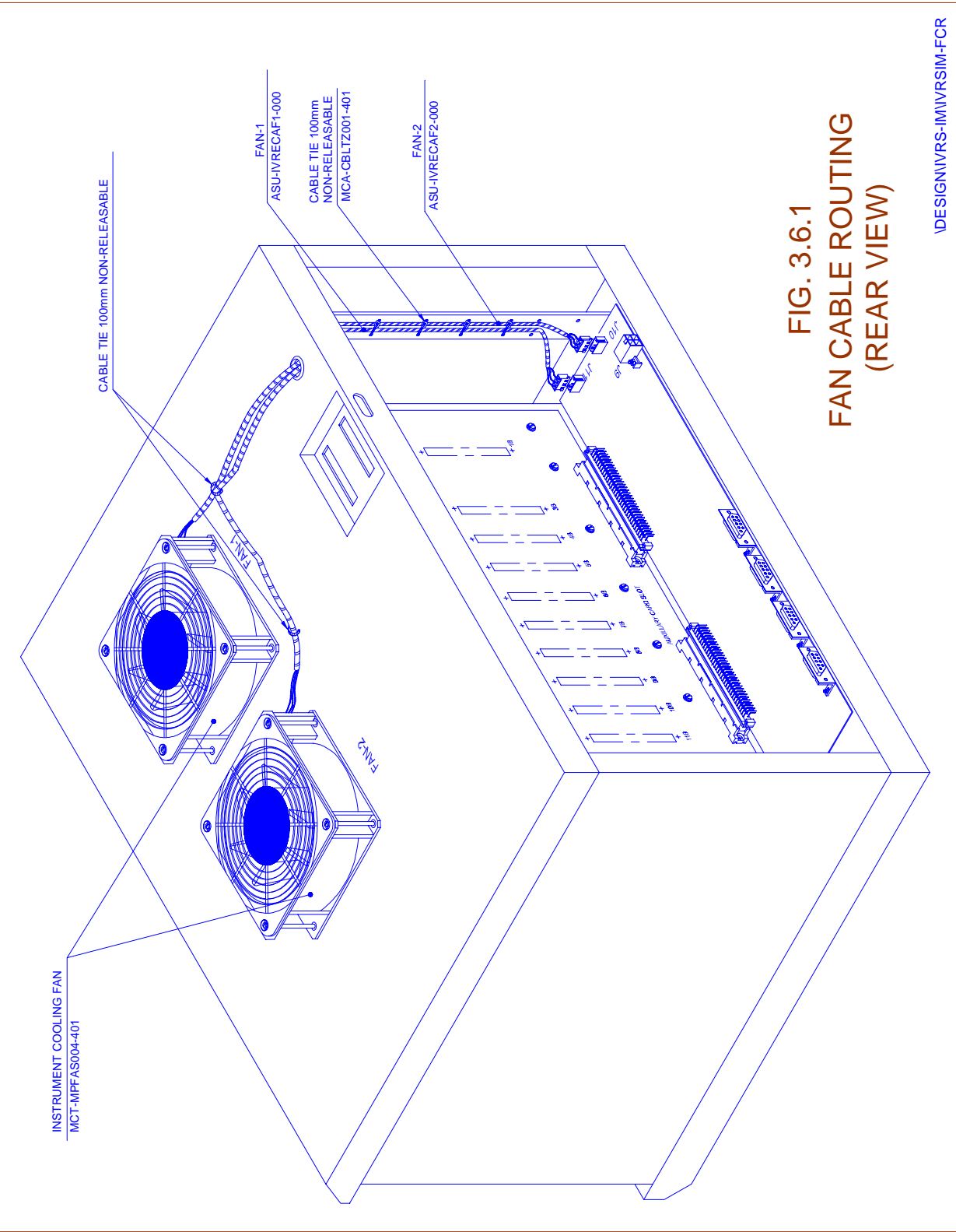
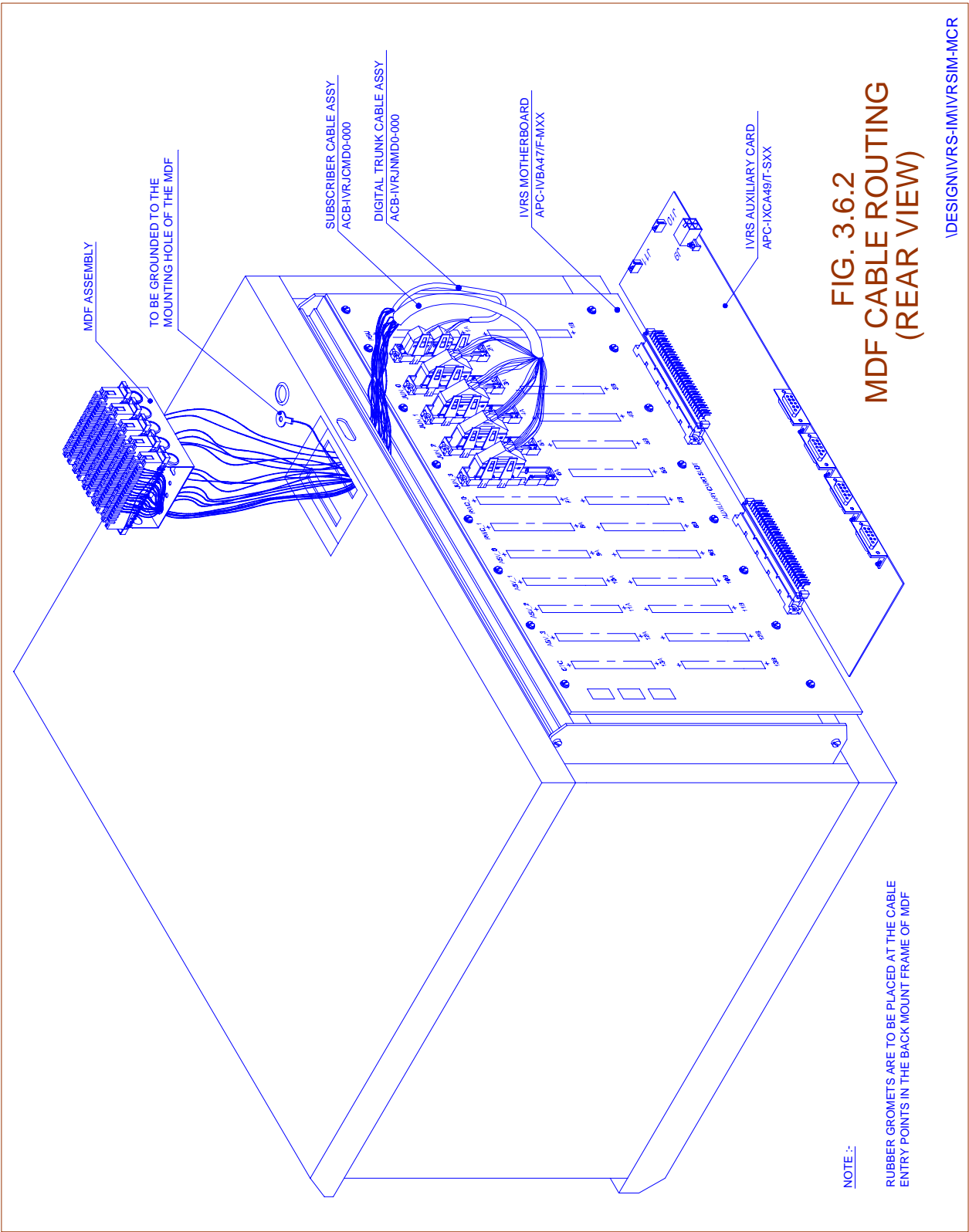
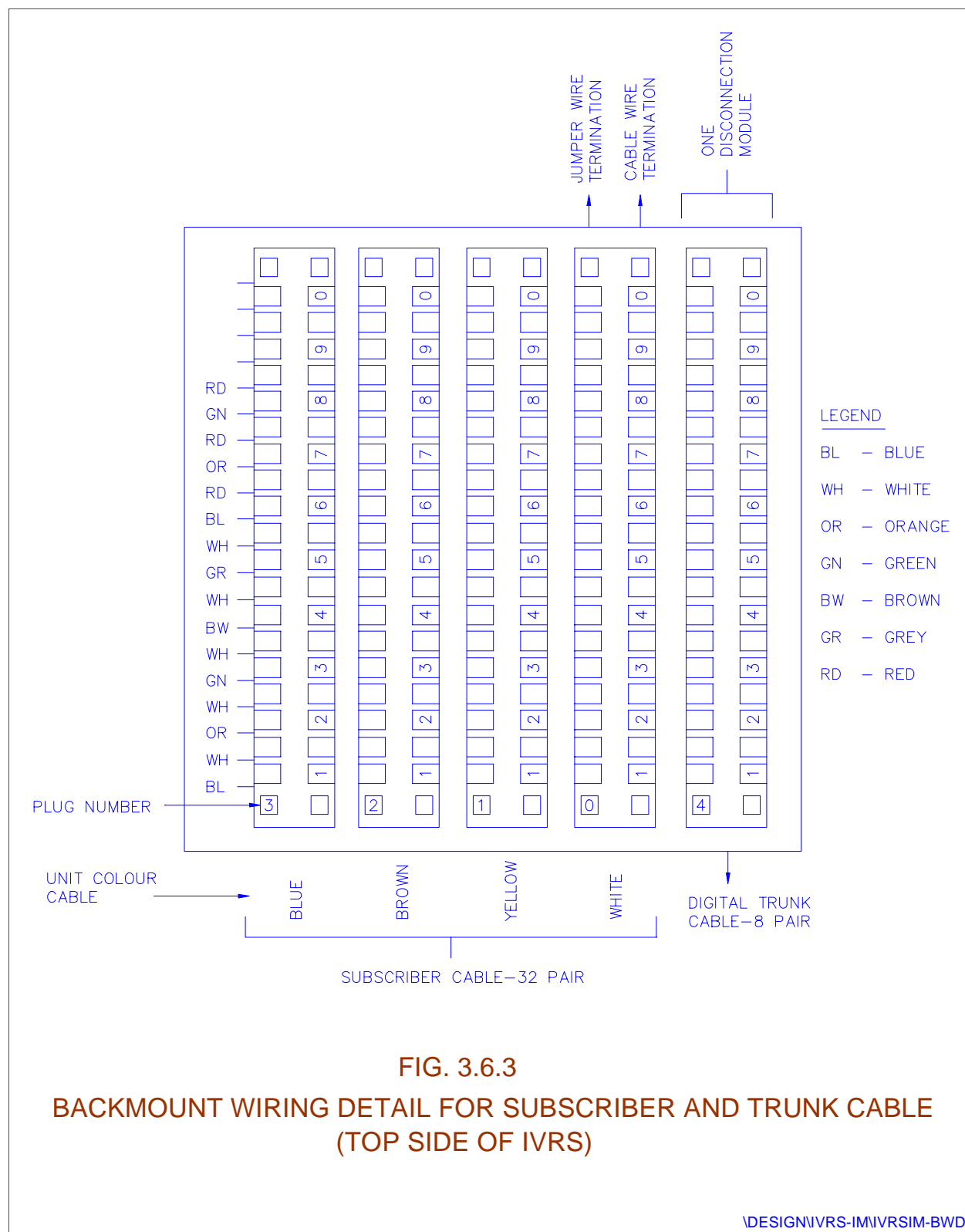


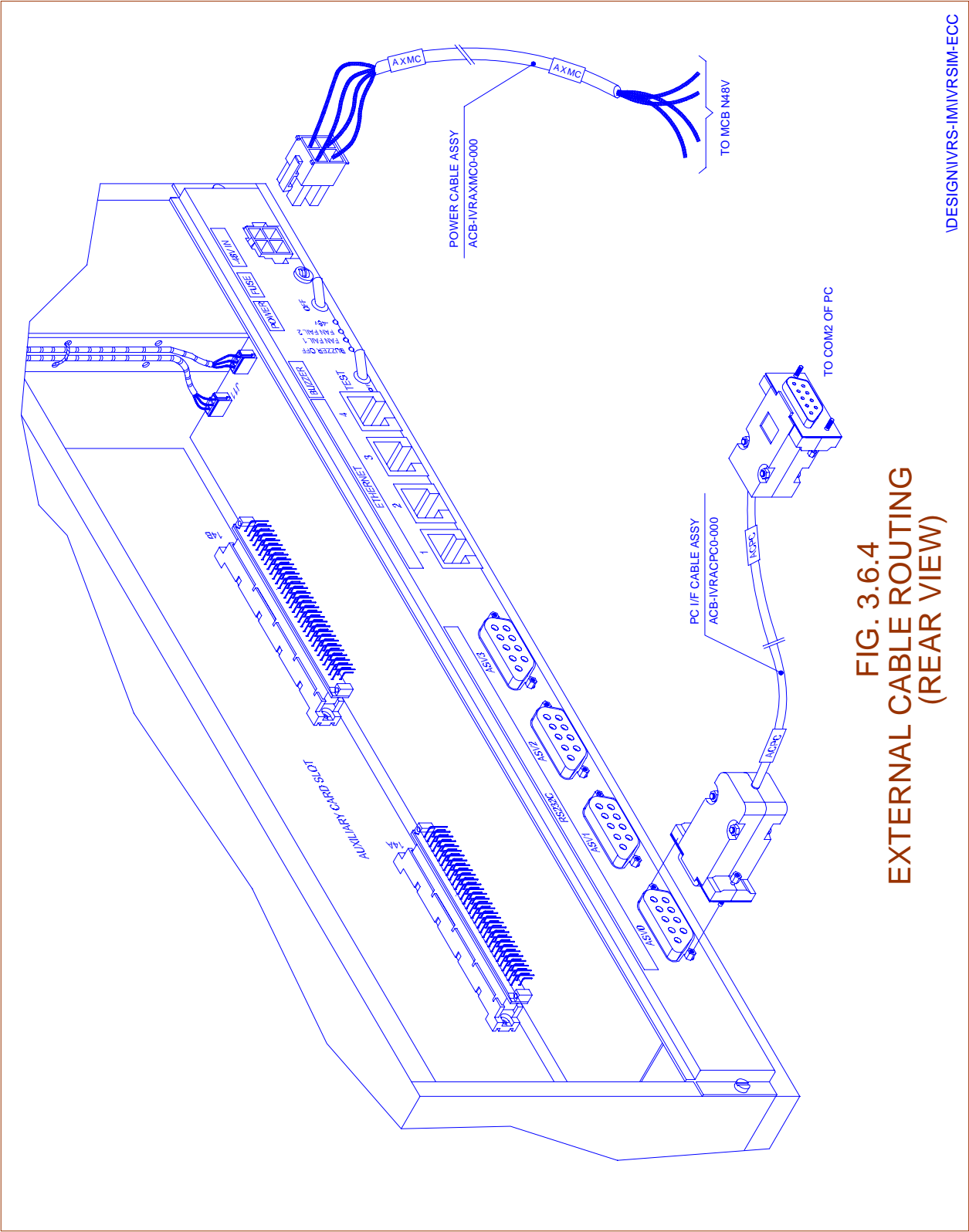
FIG. 3.6.1  
FAN CABLE ROUTING  
(REAR VIEW)

DESIGNIVRS-IMIVRSIM-FCR









DESIGN:IVRS-IMIVRSIM-ECC

FIG. 3.6.4  
EXTERNAL CABLE ROUTING  
(REAR VIEW)

## Chapter 4.

# Integration with Network

---

It is assumed that the user has received the system in the following manner :

- ◆ Motherboard fixed to the card frame.
- ◆ Fans & MDF mounted in the system
- ◆ Subscriber & Trunk Lines routed from motherboard to MDF.
- ◆ Auxiliary card placed in slot no. 14 (Motherboard backside).
- All other cards (CTC, ASV, EPU, JUN), Power and RS232 cables are available.

### N/W DIAGRAM

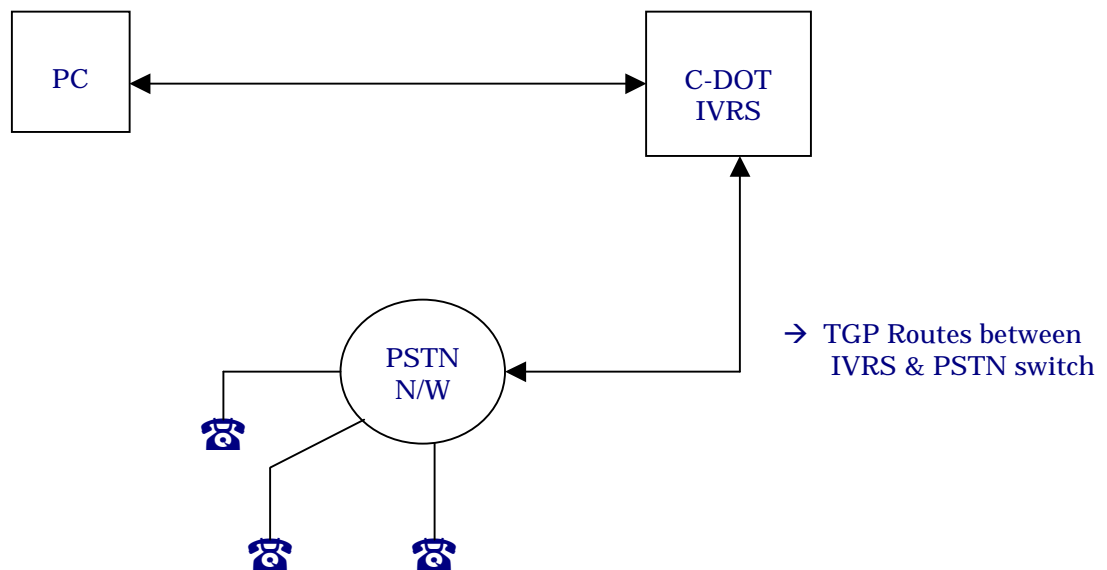


Fig. 4.1

The IVRS must be connected to the switch using analog/digital trunk with standard trunk group parameters. Routes for different applications in IVRS are to be created in the switch side. Please refer to IVRS user manual for administration/data creation of IVRS applications in the PC. The application software installation procedure is explained in Appendix-3 of this installation manual.

## Appendix - 1

# Jumper Settings

---

1. APC-ASVA27/H-B00

Position	Pins to be shorted
----------	--------------------

W4	1-2
----	-----

W5	(Not used)
----	------------

W6	2-3
----	-----

2. APC-CTCA01/O-S11

W1 → Open when EPROM is used

W1 → To be shorted when EPROM is not used (Flash is used)

## **Appendix - 2**

# **Specification of PC**

---

- INTEL Pentium-IV or latest @1.2GHz or above
- 256MB SDRAM and above (expandable)
- Minimum 4 PCI and 1 AGP Slots
- 40 GB SCSI/IDE Hard Disk or above
- 4MB AGP Card or above or inbuilt display card
- 104-Key Windows'98 Keyboard or above
- Two RS-232 Serial Ports (4 COM PORTS optional)
- One Enhanced Parallel Port EPP / ECP
- PS/2 or USB Mouse Port
- 1 Microsoft Mouse (PS/2) or USB
- 15" SVGA Colour Monitor (Non-Interlaced)
- 1 Ethernet interface Card 10/100 Mbps Autosensing with 2 PORTS (optional – for Fault Reporting System interface)
- 1.44 MB FDD
- 52x and above CD ROM or equivalent DVD Drive
- Ultra Wide PCI SCSI Card – 1 No.(optional)
- 1.2 GB Cartridge Tape or DAT Drive (optional-for back-up)
- PC Microphone (for recording announcements)
- Multimedia Kit (for announcements and playback) with in built or add on Sound Card and Speakers.
- 2 MODEMS – Class 2 or above for Line Testing and FAX (Optional)
- Windows NT 4.0 work station with all latest service packs/ Windows 2000 Professional with all latest service packs.
- WINFAXPRO 10.0 or latest version (SYMENTEC).(optional for faxing) ."

### **SPECIFICATION OF UPS (Uninterrupted Power Supply) FOR PC**

- Online UPS of rating 0.5 KVA (MINIMUM)

***POWER SOURCE FOR SYSTEM HARDWARE (Optional)***

- AC-DC converter with -48V 2A output - connected to UPS (in case -48V is not available).

## Appendix - 3

# Software Installation of IVRS

---

Insert IVRS installation CD in CDRom drive and open the windows explorer

a) Installing C-DOT IVRS Application

1. Go to the folder Net setup and double click the setup icon.
2. Select 'continue' to install the IVRS application.
3. Enter the Name of the Supervisor and the Organisation then click 'OK'.
4. Select 'OK to confirm the name of the supervisor and the organization.
5. Accept the default folder displayed by the setup program (i.e. cdotivrs). The drive can be changed to d: or e: as required.
6. Press the personal computer icon to install all files for IVRS.
7. Choose the default program group (CDOT IVRS) and press 'continue'.
8. If C-DOT IVRS has been installed in a folder other than C:\CDOTIVRS, then change the file properties of cltrans.pif file after installation.
  - i) Right click the cltrans.pif file, click properties
  - ii) Go to the program tab, change the command line parameter to the folder where you have installed CDOT IVRS.
9. Select restart windows when prompted.

b) Creating Data Source Names

10. Run the obdcsetup.exe file from cdotivrs folder.
11. Enter the full path where cdotivrs application is installed, as given in step 5 earlier, for example, C:\cdotivrs.
12. Enter the full path where commandir application is installed, for example, e:\comtran.

13. Enter the full path where subscriber master file is available. For example, e:\tele
  14. Click the 'Go' button and go through the list box to know whether all data sources have been created successfully or not. Failed ones are shown as "not done". It means that drivers are not installed properly. To install the drivers again repeat the process from step1.
- c) Importing the Registry
15. Go to the cdotivrs folder and double click the cdotivrs.reg file.
- d) Installing the FAX Software
16. Go to winfac folder and double click the setup icon.
  17. Select "Agree".
  18. Select all default values and make sure modem is connected and is turned on.
  19. Select Restart windows when prompted.
- e) Executing the Application
- Before running the application make sure that all the data sources are created properly as told in step (b).
20. Run the cdotivrs.exe and configure the system by equipping the Junction cards/DTK and map the ports to the required applications
  21. Run the cdotlinetester.exe only if any of the ports are mapped to FCS application.
  22. Run dataman.exe to see log reports and to input data to the system.
    - \* Create a batch file that copies submas.dbf from Novell server to cdotivrs server and put this batch file in scheduler with frequency everyday.

## Appendix - 4

# Data Creation for IVRS Routes in C-DOT Systems

---

- Identify the analog/digital trunks which are free.
- The trunk group can be created as follows in crp,

<cre-tgp

TGP-NO	: XX
TGP-NAME	: IVRS-OG
TGP-STA	: OG
LIN-SIG	: DR2-CAS3 for Digital Trunk
REG-SIG	: MOD-R2
[MF-SIG]	: Fully Compelled
[CGS-NO]	: ↵
[CGS-NAME]	: ↵
[ROD]	: 1
[Trunk-Priority]	: ↵
[Prefix-Digits]	: ↵
[Pad-Lev]	: ↵
[TGP-TYP]	: Ord
[CAMA]	: ↵
[TGP-FACILITY]	: ↵
[DGT-SZFD]	: ↵
[RNG-DWN]	: ↵
[DIAL-TON]	: ↵



AC-STA : 2 WP  
[AC-INFO] : ↵  
[TGP-CAT] : ↵  
[HNT-TYP] : ↵  
[SIG-INF] : ↵  
[CONF-CHK] : ↵  
[ECHO-SUP] : ↵  
[SAT-IND] : ↵  
TEN : BM-RACK-FRM-SLOT-CKT  
[TEN-NO7] : ↵  
EXECUTE

Route :

<cre-rout : ROUT-CODE : 198 (Say)  
Rout-Flag : 1 - cnb-na-ga  
          2 - cnb-na-ga  
Crg-rtn : 1-x\* & 2-x & . . .  
Dig-LGT : 3  
TGP-choice : 1-y & 9-y & 10-y & 12-y  
Execute  
y - TGP towards IVRS  
x→ Crg-rate-no with/without charging +NRML RING  
\* - Depends on the service (Charging)

Routes for other services like Billing Enquiry Service, Payment Reminder Service, changed no. announcement, etc are to be created in the similar manner.

An incoming trunk group is also to be created for calls from IVRS to the system. The tgp data is similar to that of the O/G tgp except the tgp-status parameter which is to be defined as incoming.

## Appendix - 5

# IOP - PC Connectivity for Line Testing

---

- This can be done by connecting the IOP serial port and the PC comm. port with the help of a RS232 cable. The system (IOP) should have an opr account named as 'ivrs' and passwd 'ivrs'. This can be created as follows :

<Add-opr

Opr-Name : ivrs

Grp-Name : admin

New-Pwd : ivrs

Ver-Pwd : ivrs

A-Class : 9 (Charge calendar Mgmt display) & 22 (command file related commands)

M-Class : 7 [tst-trm] Terminal maintenance routining commands

## Appendix - 6

# Interface with Servers

---

### 1. Interface with Commandir Server

The IVRS PC can be made as part of the commandir network so that data updation can be carried out in the commandir server from IVRS PC. The connectivity is shown in Fig. A6.1. Please refer to Annexure-D of IVRS user manual for further details on this.

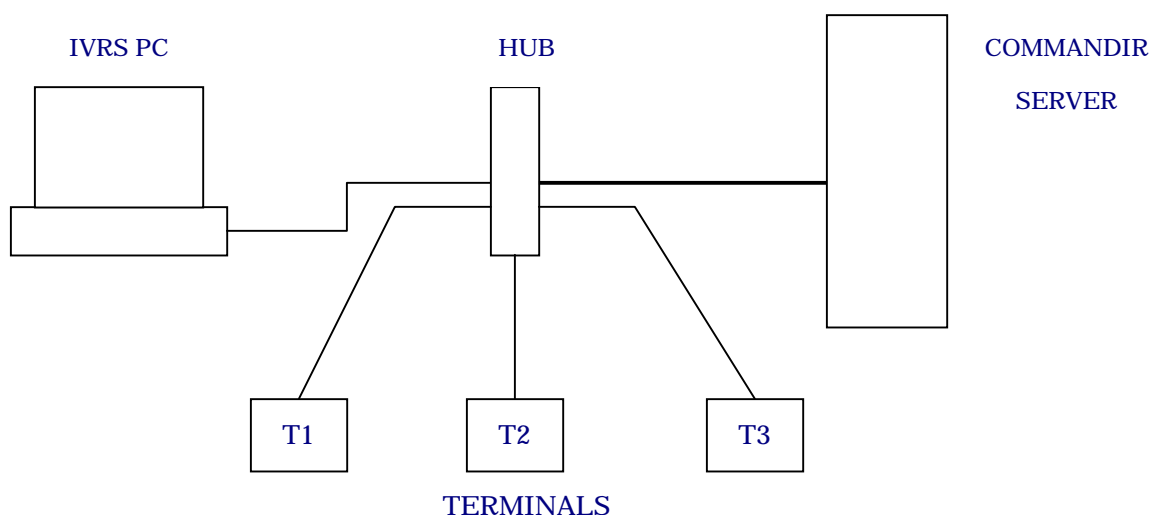
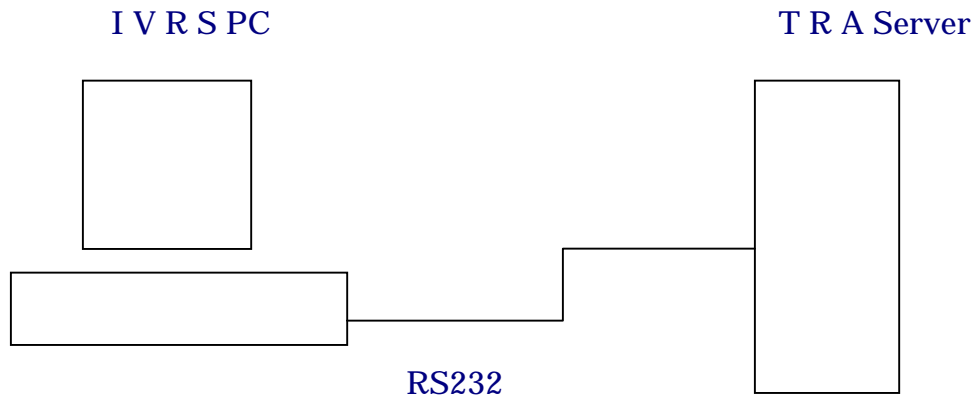


Fig. A6.1

Establish the connection between NT machine and the Novell Server using GSNW (Gateway Client Service for Netware) service which is available in Control Panel. (You should be able to access the Novell Server from NT Machine).

Log on to the Novel Server and map SYS: to some drive (say F:)

## 2. Interface with TRA Server



**Fig. 6.2**

The IVRS PC can be interfaced to the TRA server through the COM Port. This can be used for data porting (transfer). For this Teraterm software is to be installed in the PC. Please refer IVRS user manual for further details on this.

## Appendix - 7

# Power Feed in Case of Non-Availability of N48V

---

In certain circumstances it may be required to install the IVRS where N48V supply is not available. In such cases, an adapter (which converts 230V AC into -48 DC) can be used to cater the power requirement of IVRS. The setup is shown in Fig. 7.1.

### POWER FEED IN CASE OF NON AVAILABILITY OF N48V

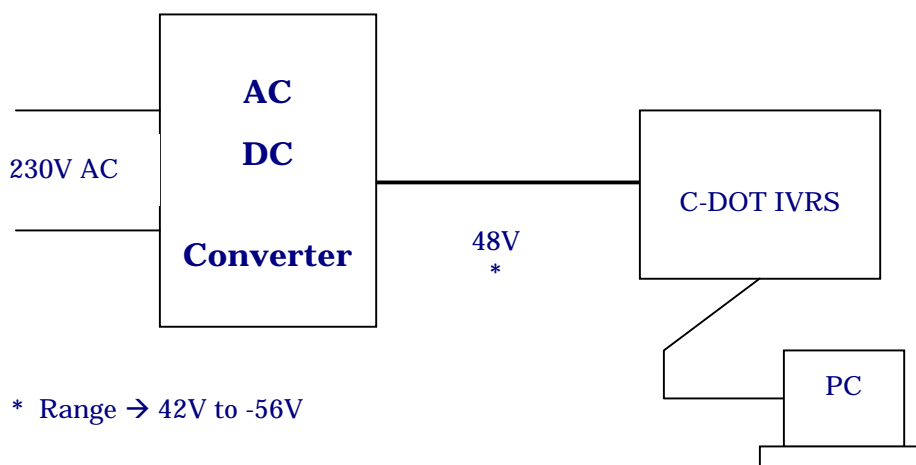


Fig. 7.1



**System  
Practices**

## COMMENTS

The following comments pertain to:

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CSP Section

 -  - 

Issue/Draft

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